CLAIMS

1. Ready-to-use composition for the oxidation dyeing of keratin fibres, and in particular of human keratin fibres such as the hair, characterized in that it comprises, in a medium which is suitable for dyeing,

- at least one oxidation dye chosen from heterocyclic oxidation bases and heterocyclic couplers, and
- at least one laccase-type enzyme,

the said composition being free of heterocyclic coupler chosen from indole, indoline, monocyclic pyridine and phenazine compounds and free of heterocyclic oxidation base chosen from 4,5-diamino-6-hydroxypyrimidine and 3,4-diaminohydroxypyrazole.

2. Composition according to Claim 1, characterized in that the laccase is chosen from laccases of plant origin, of animal origin, of fungal origin or of bacterial origin and from laccases obtained by biotechnology.

3. Composition according to either of Claims 1 and 2, characterized in that the laccase is of plant origin and chosen from the laccases present in extracts of Anacardiacea plants, of Podocarpacea plants, of Rosmarinus off., of Solanum tuberosum, of Iris sp., of Coffea sp., of Daucus carrota, of Vinca minor, of Persea americana, of Catharanthus roseus, of

Musa sp., of Malus pumila, of Gingko biloba, of Monotropa hypopithys (Indian pipe), of Aesculus sp.; of Acer pseudoplatanus, of Prunus persica and of Pistacia palaestina.

4. Composition according to Claim 1 or 2, characterized in that the laccase is of microbial origin or obtained by biotechnology.

5. Composition according to Claim 4, characterized in that the laccase is chosen from laccases obtained from Polyporus versicolor, from Rhizoctonia praticola, from Rhus vernicifera, from Scytalidium, from Polyporus pinsitus, from Myceliophthora thermophila, from Rhizoctonia solani, from Pyricularia oryzae, from Trametes versicolor, from Fomes fomentarius, from Chaetomium thermophile, from Neurospora crassa, from Colorius versicolor, from Botrytis cinerea, from Rigidoporus lignosus, from Phellinus noxius, from Pleurotus ostreatus, from Aspergillus nidulans, from Podospora anserina, from Agaricus bisporus, from Ganoderma lucidum, from Glomerella cingulata, from Lactarius piperatus, from Russula delica, from Heterobasidion annosum, from Thelephora terrestris, from Cladosporium cladosporioides, from Cerrena unicolor, from Coriolus hirsutus, from Ceriporiopsis subvermispora, from Coprinus cinereus, from Panaeolus papilionaceus, from Panaeolus sphinctrinus, from Schizophyllum commune and from Dichomitius squalens, and from variants thereof.

6. Composition according to any one of the preceding claims, characterized in that the amount of laccase(s) is between 0.5 Lacu and 200 Lacu per 100 g of dye composition.

7. Composition according to any one of the preceding claims, characterized in that the heterocyclic oxidation base(s) is(are) chosen from pyrimidine derivatives and pyrazole derivatives, and the addition salts thereof with an acid.

8. Composition according to Claim 7, characterized in that the pyrimidine derivatives are chosen from 2,4,5,6-tetraaminopyrimidine, 4-hydroxy-2,5,6-triaminopyrimidine and pyrazolopyrimidine derivatives, and the addition salts thereof with an acid.

9. Composition according to Claim 8, characterized in that the pyrazolopyrimidine derivatives are chosen from pyrazolo[1,5-a]pyrimidine-3,7-diamine, 2-methylpyrazolo[1,5-a]pyrimidine-3,7-diamine, 2,5-dimethylpyrazolo[1,5-a]pyrimidine-3,7-diamine, pyrazolo[1,5-a]pyrimidine-3,5-diamine, 2,7-dimethylpyrazolo[1,5-a]pyrimidine-3,5-diamine, 3-aminopyrazolo[1,5-a]pyrimidin-7-ol, 3-amino-5-methylpyrazolo[1,5-a]pyrimidin-7-ol, 3-aminopyrazolo[1,5-a]pyrimidin-5-ol, 2-(3-aminopyrazolo-[1,5-a]pyrimidin-7-ylamino)ethanol, 3-amino-7-β-hydroxyethylamino-5-methylpyrazolo[1,5-a]pyrimidine, 2-(7-aminopyrazolo[1,5-a]pyrimidin-3-ylamino)ethanol,

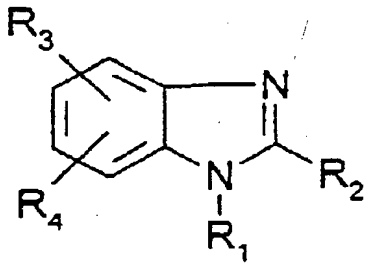
2-[(3-aminopyrazolo[1,5-a]pyrimidin-7-yl)-(2-hydroxyethyl)amino]ethanol, 2-[(7-aminopyrazolo[1,5-a]-pyrimidin-3-yl)-(2-hydroxyethyl)amino]ethanol, 5,6-dimethylpyrazolo[1,5-a]pyrimidine-3,7-diamine, 2,6-dimethylpyrazolo[1,5-a]pyrimidine-3,7-diamine and 2,5,N7,N7-tetramethylpyrazolo[1,5-a]pyrimidine-3,7-diamine, and the addition salts thereof and the tautomeric forms thereof, when a tautomeric equilibrium exists.

10. Composition according to Claim 7, characterized in that the pyrazole derivatives are chosen from 4,5-diaminopyrazole, 4,5-diamino-1-methylpyrazole, 1-benzyl-4,5-diaminopyrazole, 3,4-diaminopyrazole, 1-benzyl-4,5-diamino-3-methylpyrazole, 4-amino-1,3-dimethyl-5-hydrazinopyrazole, 4,5-diamino-3-methyl-1-phenylpyrazole, 4,5-diamino-1-tert-butyl-3-methylpyrazole, 4,5-diamino-3-tert-butyl-1-methylpyrazole, 4,5-diamino-1-ethyl-3-methylpyrazole, 4,5-diamino-1-ethyl-3-(4'-methoxyphenyl)pyrazole, 4,5-diamino-1-ethyl-3-hydroxymethylpyrazole, 4,5-diamino-3-hydroxymethyl-1-methylpyrazole, 4,5-diamino-3-hydroxymethyl-1-isopropylpyrazole and 4,5-diamino-3-methyl-1-isopropylpyrazole, and the addition salts thereof with an acid.

11. Composition according to any one of the preceding claims, characterized in that the heterocyclic coupler(s) is(are) chosen from benzimidazole derivatives, benzomorpholine derivatives,

sesamol derivatives, pyrazoloazole derivatives, pyrroloazole derivatives, imidazoloazole derivatives, pyrazolopyrimidine derivatives, pyrazoline-3,5-dione derivatives, pyrrolo[3,2-d]oxazoline derivatives, pyrazolo[3,4-d]thiazole derivatives, thiazoloazole S-oxide derivatives and thiazoloazole S,S-dioxide derivatives, and the addition salts thereof with an acid.

12. Composition according to Claim 11, characterized in that the benzimidazole derivatives are chosen from the compounds of formula (I) below, and the addition salts thereof with an acid:



(I)

in which:

R_1 represents a hydrogen atom or a C_1-C_4 alkyl radical,

R_2 represents a hydrogen atom or a C_1-C_4 alkyl or phenyl radical,

R_3 represents a hydroxyl, amino or methoxy radical,

R_4 represents a hydrogen atom or a hydroxyl, methoxy or C_1-C_4 alkyl radical;

with the proviso that:

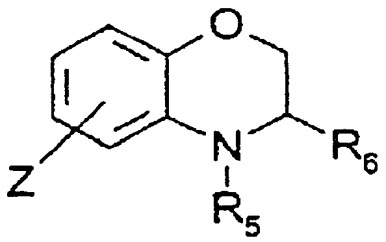
- when R_3 denotes an amino radical, then it occupies position 4,

- when R_3 occupies position 4, then R_4 occupies position 7,

- when R_3 occupies position 5, then R_4 occupies position 6.

13. Composition according to Claim 12, characterized in that the benzimidazole derivatives are chosen from 4-hydroxybenzimidazole, 4-amino-benzimidazole, 4-hydroxy-7-methylbenzimidazole, 4-hydroxy-2-methylbenzimidazole, 1-butyl-4-hydroxy-benzimidazole, 4-amino-2-methylbenzimidazole, 5,6-dihydroxybenzimidazole, 5-hydroxy-6-methoxy-benzimidazole, 4,7-dihydroxybenzimidazole, 4,7-dihydroxy-1-methylbenzimidazole, 4,7-dimethoxy-benzimidazole, 5,6-dihydroxy-1-methylbenzimidazole, 5,6-dihydroxy-2-methylbenzimidazole and 5,6-dimethoxy-benzimidazole, and the addition salts thereof with an acid.

14. Composition according to Claim 11, characterized in that the benzomorpholine derivatives are chosen from the compounds of formula (II) below, and the addition salts thereof with an acid:



(II)

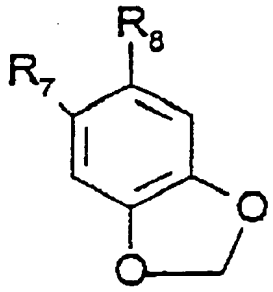
in which:

R_5 and R_6, which may be identical or different, represent a hydrogen atom or a C_1-C_4 alkyl radical,

Z represents a hydroxyl or amino radical.

15. Composition according to Claim 14, characterized in that the benzomorpholine derivatives are chosen from 6-hydroxy-1,4-benzomorpholine, N-methyl-6-hydroxy-1,4-benzomorpholine and 6-amino-1,4-benzomorpholine, and the addition salts thereof with an acid.

16. Composition according to Claim 11, characterized in that the sesamol derivatives are chosen from the compounds of formula (III) below, and the addition salts thereof with an acid:



(III)

in which:

- R_7 denotes a hydroxyl, amino, (C_1-C_4)alkylamino, monohydroxy(C_1-C_4)alkylamino or polyhydroxy(C_2-C_4)alkylamino radical,
- R_8 denotes a hydrogen or halogen atom or a C_1-C_4 alkoxy radical.

17. Composition according to Claim 16, characterized in that the sesamol derivatives are chosen from 2-bromo-4,5-methylenedioxyphenol,

2-methoxy-4,5-methylenedioxyaniline and 2-(β-hydroxyethyl)amino-4,5-methylenedioxybenzene, and the addition salts thereof with an acid.

18. Composition according to Claim 11, characterized in that the pyrazoloazole derivatives are chosen from:

- 2-methylpyrazolo[1,5-b]-1,2,4-triazole,
- 2-ethylpyrazolo[1,5-b]-1,2,4-triazole,
- 2-isopropylpyrazolo[1,5-b]-1,2,4-triazole,
- 2-phenylpyrazolo[1,5-b]-1,2,4-triazole,
- 2,6-dimethylpyrazolo[1,5-b]-1,2,4-triazole,
- 7-chloro-2,6-dimethylpyrazolo[1,5-b]-1,2,4-triazole,
- 3,6-dimethylpyrazolo[3,2-c]-1,2,4-triazole,
- 6-phenyl-3-methylthiopyrazolo[3,2-c]-1,2,4-triazole,
- 6-aminopyrazolo[1,5-a]benzimidazole,

and the addition salts thereof with an acid.

19. Composition according to Claim 11, characterized in that the pyrroloazole derivatives are chosen from:

- 5-cyano-4-ethoxycarbonyl-8-methylpyrrolo[1,2-b]-1,2,4-triazole,
- 5-cyano-8-methyl-4-phenylpyrrolo[1,2-b]-1,2,4-triazole,
- 7-amido-6-ethoxycarbonylpyrrolo[1,2-a]benzimidazole,

and the addition salts thereof with an acid.

20. Composition according to Claim 11, characterized in that the imidazoloazole derivatives are chosen from:

- 7,8-dicyanoimidazolo[3,2-a]imidazole,
- 7,8-dicyano-4-methylimidazolo[3,2-a]imidazole,

and the addition salts thereof with an acid.

21. Composition according to Claim 11, characterized in that the pyrazolopyrimidine derivatives are chosen from:

- pyrazolo[1,5-a]pyrimidin-7-one,
- 2,5-dimethylpyrazolo[1,5-a]pyrimidin-7-one,
- 2-methyl-6-ethoxycarbonylpyrazolo[1,5-a]pyrimidin-7-one,
- 2-methyl-5-methoxymethylpyrazolo[1,5-a]pyrimidin-7-one,
- 2-tert-butyl-5-trifluoromethylpyrazolo[1,5-a]pyrimidin-7-one,
- 2,7-dimethylpyrazolo[1,5-a]pyrimidin-5-one, and the addition salts thereof with an acid.

22. Composition according to Claim 11, characterized in that the pyrazoline-3,5-dione derivatives are chosen from:

- 1,2-diphenylpyrazoline-3,5-dione,
- 1,2-diethylpyrazoline-3,5-dione,

and the addition salts thereof with an acid.

23. Composition according to any one of the preceding claims, characterized in that the heterocyclic oxidation dye(s) represent(s) from 0.0001% to 12% by weight relative to the total weight of the ready-to-use dye composition.

24. Composition according to Claim 23, characterized in that the heterocyclic oxidation dye(s) represent(s) from 0.005% to 6% by weight relative to the total weight of the ready-to-use dye composition.

25. Composition according to any one of the preceding claims, characterized in that it contains at least one benzenic oxidation base chosen from para-phenylenediamines, bis(phenylalkylenediamines, orthophenylenediamines, para-aminophenols and ortho-aminophenols, and the addition salts thereof with an acid, and/or at least one benzenic coupler chosen from meta-phenylenediamines, meta-aminophenols and meta-diphenols and the addition salts thereof with an acid, and/or at least one direct dye.

26. Composition according to any one of the preceding claims, characterized in that the addition salts with an acid are chosen from the hydrochlorides, hydrobromides, sulphates, tartrates, lactates and acetates.

27. Composition according to any one of the preceding claims, characterized in that the medium which is suitable for dyeing consists of water or of a mixture of water and at least one organic solvent.

28. Composition according to any one of the preceding claims, characterized in that it has a pH of between 4 and 11.

29. Process for dyeing keratin fibres, and in particular human keratin fibres such as the hair,

characterized in that at least one ready-to-use dye composition as defined in any one of the preceding claims is applied to the said fibres, for a period which is sufficient to develop the desired coloration.

30. Process according to Claim 29, characterized in that it includes a preliminary step which consists in separately storing, on the one hand, a composition (A) comprising, in a medium which is suitable for dyeing, at least one heterocyclic oxidation dye as defined in any one of Claims 1, 7 to 24 and 26, and, on the other hand, a composition (B) comprising in a medium which is suitable for dyeing, at least one laccase-type enzyme, and then in mixing them together at the time of use, after which this mixture is applied to the keratin fibres.

31. Multi-compartment dyeing device or "kit", characterized in that it includes a first compartment comprising composition (A) as defined in Claim 30 and a second compartment comprising composition (B) as defined in Claim 30.